

## ABSTRACT OF THE DISCLOSURE

A method is provided for producing a specific crosscoupling compound and a specific catalyst for producing the compound. The method includes reacting in the presence of a base and a nickel compound catalyst organic halide of the formula  $n'(R^1X^1)_n$ , wherein  $R^1$  is a hydrocarbon group and the  $\alpha$  and  $\beta$  carbons to  $X^1$  are  $sp^3$  carbon atoms;  $X^1$  is a chlorine, bromine, or iodine atoms, and  $n$  and  $n'$  are 1 or 2 but not both 2, with a compound having the formula  $m\{R^2(BX^2_2)_n\}$  where an  $R^2$  is an aryl, heteroaryl, or alkenyl group, and  $n'$  is 1 or 2,  $X_2$  is independently a hydroxyl group, an alkoxy or arylalkoxy group or  $X^2_2$  together form an alkylenedioxy or arylenedioxy group, and  $m$  represents 1 or 2 but  $m \leq n$ , and the boron atom is bonded to a  $sp^2$  carbon atom of  $R^2$  group or a boronic acid trimer anhydride.